CHEMISTRY
Year at a Glance (YAG)
2023-2024

First Semester		Second Semester	
1st Nine Weeks		**3rd Nine Weeks**	
TEKS C.1A,B,C C.2E,F,G,H,I C.2A,B,C,D C.4A,B,C,D C.6A,D C.8A,B C.12A,B,C	**Scientific Processes** Students will be able to utilize scientific method while demonstrating proper lab techniques and safety procedures. **Classification of Matter** Students will classify matter, identify chemical/physical properties and changes, and analyze the relationships between chemical and physical properties. **Atomic Theory** Students will understand the experimental design of the atomic model and the evolution of the modern atomic theory. **Nuclear Chemistry** Students will understand the basic processes of nuclear reactions, radioactive decay, fission and fusion.	**TEKS** C.8A,D C.10H C.8E C.9A,B,C	**Chemical Equations and Reactions** Students use the Law of Conservation of Mass to write and balance equations and will classify the type of reaction shown. **Stoichiometry** Students will perform stoichiometric calculations involving mass, volume, limiting reactants, percent error, and percent yield. **Phases and Gases** Students relationships between pressure, temperature, volume, moles, and density of a gas using equations for all of the gas laws.
2nd Nine Weeks		**4th Nine Weeks**	
TEKS C.6B,C,E C.5A,B,C C.7A,B,C,D,E C.8C	**Electromagnetic Radiation/Behavior of Electrons** Students will understand the electromagnetic spectrum, and be able to calculate mathematical relationships for the properties of waves. **Periodic Table** Students will be able to identify and predict trends of elements based on position and properties. **Chemical Bonding, Formulas, and Naming** Students will understand how ionic and covalent bonds are formed, and will be able to write and name chemical compounds according to IUPAC nomenclature.	**TEKS** C.10A,B,C,D,E C.10G,H,I,J	**Composition of Solutions** Students will calculate the concentration of solutions and use molarity to calculate a dilution. **Ionization** Students will distinguish dissolving from dissociation and identify types of solutions based on conductivity, solubility, and saturation. **Acid-Base Theory** Students will define acids and base according to Arrhenius, Bronsted-Lowry, and Lewis definitions. **Acid-Base Calculations** Students will define and calculate pH from hydrogen and hydroxide concentrations. Students will understand acid-base reactions through a titration equation.

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1st Nine Weeks	2nd Nine Weeks	3rd Nine Weeks	4th Nine Weeks
Chemistry Textbook Vernier Probeware & Software (Freezing & Melting of Water) pHet simulations - States of Matter, Building an Atom	Chemistry Textbook Vernier Probeware & Software (Alpha, Beta, Gamma - radioactive decay) pHet simulations -Photoelectric Effect, Molecular Building, Atomic Interactions Alpha Decay, Beta Decay	Chemistry Textbook Vernier Probeware & Software (Boyle's Law) pHet simulations - Balancing Chemical Reactions, Reversible Reactions, States of Matter, Sugar and Salt Solutions	Chemistry Textbook Vernier Probeware & Software (Conductivity of Solutions, Beer's Law, Effect of Temp on Solubility of a Salt, Titration Curves of Strong & Weak Acids) pHet simulations - Concentration, Acid/Base Solutions,
<u>GT Modifications</u> Accelerated pace Additional problem solving Memorization of common ions Completion of formal lab reports in all four grading periods Measuring alpha, beta, gamma decay and radiation shielding	<u>GT Modifications</u> Accelerated pace Additional problem solving Lewis structures to include organic molecules with functional groups Hybridization of orbitals Molecular geometry based on ABE system Photoemission Spectroscopy	<u>GT Modifications</u> Accelerated pace Additional problem solving Non-STP Stoichiometry problems Graham's Law of Diffusion Graham's Law of Effusion	<u>GT Modifications</u> Accelerated pace Additional problem solving Calculation of mole fraction and molality Use of concentration in freezing point depression and boiling point elevation Calculation of normality Use of normality in titration problems